

SELF - REGULATED STRATEGY: EFFECT ON SELF - EFFICACY AND WELL - BEING OF STUDENTS WITH LEARNING DISABILITY

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ABSTRACT

Background

Self – regulation and self – regulated learning in particular have gained a lot of focus lately in general and special education. Self –regulated strategy is a highly flexible and fluid approach. The strategy offers a lot of ease of implementation as regards being reordered, combined and modified. This makes it an appealing approach to put to use in mainstream inclusive classrooms.

Method & Tools

The present study employed a true experimental design. The specific design used was Pre-test – Post-test Control Group Design. The psychological tools used to conduct the present study were Self-Efficacy Scale (SES-SANS) by (Singh & Narain, 2014) and General Well-Being Scale (GWBS-KADA).

The results

The intervention in self – regulated strategy caused significant changes in all dimensions of self – efficacy i.e. self – confidence, efficacy expectation, positive attitude and outcome expectation. A significant change was seen even in the total self – efficacy scores. Similarly, intervention in self – regulated strategy also led to significant changes in the well – being scores across all the dimensions of physical well – being, emotional well – being, social well – being and school well – being. Significant changes were also seen for overall or total well – being scores.

Conclusion

The present study makes a good case for self – regulated strategy as a promising intervention approach for students with learning disabilities in particular and students facing learning issues or problems in general in the mainstream classrooms of the inclusive school environment.

KEYWORDS: Self Regulation & Self Regulated Learning

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INTRODUCTION

One of the key processes of human behaviour is learning. It plays an important and indispensable role throughout the human lifespan. An offshoot of this very human behaviour in a systematized form is Education. It is education that gradually brings about a change and leads to progress of self; further leading to a change in the social scenario. Recently, self – regulation and self – regulated learning has gained a lot of focus in general and

special education.

Self – regulated strategy which is discussed later is an off shoot of self – regulated learning. According to (Dettori, 2014), self-regulated learning is an individual's active and conscious control of his/her own learning activity. Self – regulated learning has three characterizing elements.

- Awareness
- Strategic action
- Motivation

Learning Disability

According to the National Joint Committee for Learning Disabilities (NJCLD) in 1981 ((Hammil, Leigh, McNutt, & Larsen, 1981)

“Learning disabilities are *a generic term* that refers to a heterogeneous group of disorders manifested by *significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning and mathematical abilities*. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (such as sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (such as cultural differences, insufficient or inappropriate instruction, psychogenic factors), it is not the result of those conditions or influences”.

According to the Rights of Persons with Disabilities Bill (2014) as introduced in the Rajya Sabha of India:

“Specific learning disabilities means a *heterogeneous group of conditions* wherein there is a *deficit in processing language, spoken or written*, that may manifest itself as a difficult to *comprehend, speak, read, write, spell, or to do mathematical calculations* and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia and developmental aphasia”.

Self – Regulated Strategy

Self – regulated strategy rests or is based on the premise that learning is a complex process. It relies on changes that occur in the learners' skills, self-regulation, strategic knowledge, domain-specific knowledge and abilities, and motivation (Graham & Harris, 2005). The characteristics that make self- regulated strategy best suited for students facing learning problems is: (1) The early models targeted to normally achieving students. Explicit development of self-regulation strategies was gradually integrated throughout the stages of instruction in the SRSD model (Harris et al., 2003). This happened as research informed that students experiencing learning and academic difficulties require extensive, structured and explicit instruction than their peers to develop skill sets and strategies. (2) Self – regulated strategy directly targets and addresses children's motivation, attitudes and beliefs about themselves as learners. It assists them in developing attributions for effort and strategy use including self-efficacy and high levels of engagement. (3) The progression or advancement through the various stages of self-regulated strategy development is criterion-based as against being time-based. This proves really beneficial for students who may have been unsuccessful due to a set or a forced pace of instruction.

Self – Efficacy

Self – efficacy traces its roots in the ‘Social Learning Theory’. In the words of the proponent Albert Bandura himself:

“Social learning theory approaches the explanation of human behaviour in terms of a continuous reciprocal interaction between cognitive, behavioural, and environmental determinants. Within the process of reciprocal determinism lies the opportunity for people to influence their destiny as well as the limits of self-direction. This conception of human functioning then neither casts people into the role of powerless objects controlled by environmental forces nor free agents who can become whatever they choose. Both people and their environments are reciprocal determinants of each other” (Bandura, 1977).

Self – efficacy is a basically an expectation that by personal effort one can achieve a desired outcome or master a given situation. Feelings of personal self – efficacy are further based on four sources of information, namely, performance accomplishments, vicarious experience, verbal persuasion and emotional arousal. (Bandura, 1977).

Well – Being

Well – being as a concept has been hard to define. This has been so because of the interchangeable use of terms such as happiness, life – satisfaction and well – being. The construct of well – being can be explained and understood through two notions, namely, the Indian notion of happiness and well – being and the Western notion of happiness and well – being. The Indian notion believes in self – regulation and focuses on nurturing sustainable happiness. The western notion further has two conceptions Hedonic well – being or subjective well – being and Eudaimonic Well – being or Psychological well – being. Hedonic well – being is a tripartite model of well – being (Diener, 1984). It includes (i) frequent pleasant feelings, (ii) less frequent unpleasant feelings, (iii) overall feeling of satisfaction with life. On the other hand, Eudaimonic well – being places importance on the fulfilment of certain needs before psychological growth takes place (Ryan & Deci, 2001).

Objectives

The specific objectives of the present study are listed below:

1. To assess the general self-efficacy of the students with learning disability.
2. To assess the general well-being of the students with learning disability.
3. To provide intervention using self – regulated strategy instruction.
4. To examine the effect of intervention in self-regulated strategy on general self-efficacy.
5. To examine the effect of intervention in self-regulated strategy on general well-being.

The Present Study

Participants

The final participants for the study were drawn from five government schools each belonging to a different administrative cluster from the Government schools located in the city of Chandigarh, India. The participants were students studying in classes V to VIII.

Design

The present study employed a true experimental design. The specific research design used was the 'Pretest-Posttest Control Group Design'. The diagrammatic layout of the study is depicted below.

Phase 1	Identification of students with Learning Disability		
Phase 2	Assignment into Groups	Experimental Group	Control Group
Phase 3	Orientation Phase		
Phase 4	Pretest	1. General Self-Efficacy (GSE) Scale 2. Self-Efficacy for Self-Regulated Learning Scale (SESRLS). 3. General Well- Being Scale (GWBS).	1. General Self-Efficacy (GSE) Scale 2. Self-Efficacy for Self-Regulated Learning Scale (SESRLS). 3. General Well- Being Scale (GWBS).
Phase 5	Intervention	Intervention in Self-Regulated Strategy	Regular Classroom Instruction with brief interactive sessions with the researcher
Phase 6	Posttest	1. General Self-Efficacy (GSE) Scale 2. Self-Efficacy for Self-Regulated Learning Scale (SESRLS). 3. General Well- Being Scale (GWBS).	1. General Self-Efficacy (GSE) Scale 2. Self-Efficacy for Self-Regulated Learning Scale (SESRLS). 3. General Well- Being Scale (GWBS).

Procedure

The present study was undertaken in five phases.

Phase I was that of preliminary preparation. This phase at the outset was about attaining approval from all the concerned University and School authorities. This was followed by the researcher's visits to the various schools and contacting the principals/ heads. The researcher was further introduced to the Children with Special Needs (CWSN) – in charges at the various schools. This was followed by detailed discussion on the objectives and plan of study.

Phase II of the study aimed at diagnosis and orientation. During this phase, students with learning disability were also identified using a standardized tool.

Phase III comprised of administration of tests or instruments of Self-Efficacy Scale (SES-SANS) by (Singh & Narain, 2014), Self-Efficacy for Self-Regulated Learning Scale (SESRLS) from Bandura's (1989) Children's Multidimensional Self-Efficacy Scales, General Well-Being Scale (GWBS-KADA) by (Kalia & Deswal, 2011).

Phase IV of the study was the intervention phase. The participants in the experimental group were provided intervention in self – regulated strategy. The intervention package was a capsule of thirty interventions, the first ten related to reading skills while the remaining were related to writing skills.

Phase V was the last and final phase was a retest and post-test phase of the variables under examination in the study.

RESULTS

Table 1: Mean Differentials between Pre-Test and Post-Test Scores in Various Dimensions of Self-Efficacy of Control Group

Dimensions of Self-Efficacy	Mean		SD		T-Value
	Pre-Test	Post-Test	Pre-Test	Post-Test	
Self-confidence	19.26	19.26	3.45	3.24	0.00**
Efficacy Expectation	19.90	18.94	3.03	3.72	1.485**
Positive Attitude	19.02	17.74	3.01	3.14	2.582**
Outcome Expectation	21.18	19.06	3.19	3.95	3.707**
Total	79.86	74.64	8.71	11.47	3.452**

*Significant at 0.05 level

**Significant at 0.01 level

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 17.2$, $SD = 3.73$) and post-test self-efficacy scores in the dimension of self-confidence ($M = 19.74$, $SD = 3.46$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at 0.591 and -0.076, respectively, which is less than the maximum allowable values for a t-test (i.e., $skew < |2.0|$ and $kurtosis < |9.0|$, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .38$, $p < 0.01$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on self-efficacy scores was rejected, $t(49) = -4.483$, $p < 0.01$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.63, which is a medium effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 16.5$, $SD = 3.16$) and post-test self-efficacy scores in the dimension of efficacy expectation ($M = 20.58$, $SD = 3.01$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at -0.488 and 0.744, respectively, which is less than the maximum allowable values for a t-test (i.e., $skew < |2.0|$ and $kurtosis < |9.0|$, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .33$, $p < 0.05$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on self-efficacy scores was rejected, $t(49) = -8.087$, $p < 0.01$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 1.14, which is a large effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 16.68$, $SD = 3.76$) and post-test self-efficacy scores in the dimension of positive attitude ($M = 20.20$, $SD = 2.43$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at -0.536 and 0.604, respectively, which is less than the maximum allowable values for a t-test (i.e., $skew < |2.0|$ and $kurtosis < |9.0|$, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .386$, $p < 0.01$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on self-efficacy scores was rejected, $t(49) = -6.906$, $p < 0.01$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.98, which is a large effect based on Cohen's (1992) guidelines

(Gignac & Szodorai, 2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 19.4$, $SD = 3.03$) and post-test self-efficacy scores in the dimension of outcome expectation ($M = 18.98$, $SD = 3.81$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at 0.263 and 0.114, respectively, which is less than the maximum allowable values for a t-test (i.e., skew < |2.0| and kurtosis < |9.0|, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .211$, $p < 0.10$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on self-efficacy scores was not rejected, $t(49) = 0.685$, $p < 0.01$. Thus, the post-test mean was statistically not significantly higher than the pre-test mean. Cohen's d was estimated at 0.096, which is a small effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 71.18$, $SD = 11.85$) and post-test self-efficacy scores for the total general self – efficacy scores ($M = 77.76$, $SD = 9.88$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at 0.013 and 0.828, respectively, which is less than the maximum allowable values for a t-test (i.e., skew < |2.0| and kurtosis < |9.0|, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .258$, $p < 0.01$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on self-efficacy scores rejected, $t(49) = -3.491$, $p < 0.01$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.49, which is a medium effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

Table 2: Mean Differentials between Pre-Test and Post-Test Scores in Various Dimensions of Well – Being of Experimental Group

Dimensions of Well - Being	Mean		SD		T-Value
	Pre-Test	Post-Test	Pre-Test	Post-Test	
Physical Well - being	39.3	42.21	7.35	7.45	-1.935**
Emotional Well - being	44.60	47.14	7.77	7.02	-2.565*
Social Well - being	60.92	63.82	11.63	10.78	-2.202*
School Well - being	43.82	46.98	9.02	8.35	-2.693*
Total	188.64	200.82	26.21	22.08	-3.509**

*Significant at 0.05 level

**Significant at 0.01 level

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 39.3$, $SD = 7.35$) and post-test scores of physical well - being ($M = 42.21$, $SD = 7.45$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at -0.061 and -0.374, respectively, which is less than the maximum allowable values for a t-test (i.e., skew < |2.0| and kurtosis < |9.0|, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .033$, $p < .$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on physical well – being was accepted, $t(49) = -1.935$, $p < 0.01$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.27, which is a large effect based on Cohen's (1992) guidelines (Gignac & Szodorai,

2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 44.60$, $SD = 7.77$) and post-test scores of emotional well - being ($M = 47.14$, $SD = 7.02$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at -0.043 and -0.051 , respectively, which is less than the maximum allowable values for a t-test (i.e., $skew < |2.0|$ and $kurtosis < |9.0|$, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .556$, $p < 0.01$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on emotional well - being was rejected, $t(49) = -2.656$, $p < 0.05$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.36 , which is a medium effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 60.92$, $SD = 11.63$) and post-test scores of social well - being ($M = 63.82$, $SD = 10.78$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at -0.187 and -0.572 , respectively, which is less than the maximum allowable values for a t-test (i.e., $skew < |2.0|$ and $kurtosis < |9.0|$, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .657$, $p < 0.01$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on social well - being was rejected, $t(49) = -2.202$, $p < 0.05$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.31 , which is a medium effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 43.82$, $SD = 9.02$) and post-test scores of school well - being ($M = 46.98$, $SD = 8.35$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at 0.245 and -0.685 , respectively, which is less than the maximum allowable values for a t-test (i.e., $skew < |2.0|$ and $kurtosis < |9.0|$, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .546$, $p < 0.01$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on school well - being was rejected, $t(49) = -2.693$, $p < 0.05$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.38 , which is a medium effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

To test the hypothesis intervention in self-regulated strategy has no effect on the pre-test ($M = 188.64$, $SD = 26.21$) and post-test scores of total well - being ($M = 200.28$, $SD = 22.08$), a dependent samples t-test was performed. Prior to conducting the analysis, the assumption of normally distributed difference scores was examined. The assumption was considered satisfied, as the skew and Kurtosis levels were estimated at 0.372 and -0.022 , respectively, which is less than the maximum allowable values for a t-test (i.e., $skew < |2.0|$ and $kurtosis < |9.0|$, (Posten, 1984). It will also be noted that the correlation between the two conditions was estimated at $r = .540$, $p < 0.01$, suggesting that the dependent samples t-test is appropriate in this case. The null hypothesis of intervention in self-regulated strategy having no effect on total well -

being was rejected, $t(49) = -3.509$, $p < 0.01$. Thus, the post-test mean was statistically significantly higher than the pre-test mean. Cohen's d was estimated at 0.50, which is a medium effect based on Cohen's (1992) guidelines (Gignac & Szodorai, 2016).

Table 3: Correlation between Self – Efficacy and Well - Being

Variables	Pearson Correlation Value	Significance (2-Tailed) Value	Level of Significance
Self – efficacy Pre-test and Well – being Pre-test	0.486	.000**	Highly Significant
Self – efficacy Post-test and Well – being Post-test	0.292	0.040*	Significant at 0.05 Level

*Significant at 0.05 level

**Significant at 0.01 level

To test the hypothesis that there is no correlation between self – efficacy and well – being, the correlation between pre-test measures of self – efficacy and well – being and correlation between post – test measures of self – efficacy and well – being was computed. The correlation values between pre-test measures of self – efficacy and well – being was found to be significant at 0.01 level. The correlation between post-test measures of self – efficacy and well – being was found to be significant at 0.05 level.

DISCUSSIONS

The results of the present study were found in accordance with previous studies done on similar lines. A significant change was found in positive attitude and outcome expectation. In a study on structuring instruction in order to promote self – regulated learning by adolescents with learning disabilities (Butler, 2010) reported gains in self – confidence, self – directedness and an awareness of their individual learning strategies. One of the major results of this research in terms of well – being was that the perceptions of students who received the intervention remained positive. (Kadhiravan, 2012) explored the relation between self – regulated learning and academic motivation of adolescents. The study was conducted on 350 higher secondary students from 8 schools in Villupuram district. This study revealed gender differences in self-regulated learning with female students showing better usage of self – regulated strategies. This study also revealed higher usage of self – regulated strategies by Government school students.

In another study of meta – analysis of self – regulation training programmes (Dignath, Buettner, & Langfeldt, 2008) included studies which lasted more than a single session done on students of Grade 1-6. This study found very encouraging results with high effect sizes for interventions based on social learning theories. Also, a combination of metacognitive and social learning theories reported higher effect sizes. In line with this research, this study also found large to medium effect sizes for physical well – being, emotional well – being, social well – being and even school well – being.

(Zito, Adkins, Gavins, Harris, & Graham, 2007) conducted a study on the relationship of self – regulated strategy development to social – cognitive perspective and development of self – regulation. This piece of research was based on the notion that self – regulated strategy addresses children's motivation, attitudes and beliefs about themselves as learners. It assists in developing thinking or attributions for effort and strategy use. The findings of this study found improvements in four main areas of quality of writing, knowledge of writing, approach to writing and that self-efficacy regarding writing which was in cognizance with the results of this study. The present study reported significant gains in positive attitude and outcome expectation dimensions of self – efficacy. In another study (Klassen, 2010) examined the self – efficacy for self –

regulated learning of 146 adolescents with and without learning disabilities. The learning disabilities group received Interventional learning support in a resource room. The results of this study revealed that adolescents with learning disabilities rated their self – regulatory efficacy and reading self – efficacy lower than those without learning disabilities. Another important inference was that self – regulatory efficacy made a significant contribution to end – term English grades.

In a nutshell, the intervention in self – regulated strategy caused significant changes in all dimensions of self – efficacy i.e. self – confidence, efficacy expectation, positive attitude and outcome expectation. A significant change was seen even in the total self – efficacy scores. Similarly, intervention in self – regulated strategy also led to significant changes in the well – being scores across the dimensions of physical well – being, emotional well – being, social well – being and school well – being. Significant changes were also seen for overall or total well – being scores. The correlation between self – efficacy and well - being pre - test scores as well as that between self – efficacy and well – being scores post – test scores were also found to be significant. The study thus indicates a strong correlation between self – efficacy and well – being scores.

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